

REMARKS

Claims 1-26, 28-69, and 73-93 are pending and stand rejected. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Applicant's undersigned representative would like to thank the Examiner for the courtesies extended during the personal interview of May 27, 2003. A summary of the issues discussed during the interview is provided below.

First, as suggested by the Examiner and agreed to during the interview, the claim numbers and dependencies have been amended so that the pending claims are properly numbered 1-26, 28-69, and 73-93. Moreover, claims 51, 82, and 92 have been further amended to overcome the claim objections set forth in the Final Office Action. Finally, claims 61 and 66 have been amended to overcome the Section 112 rejections. Applicant submits that entry of the above amendments is proper, since the amendments place the claims into better form for appeal.

In the Final Office Action, the Examiner objected to claim 92, which included a typographical error. Claim 92 has been amended to remove the typographical error.

The Examiner also objected to claims 51 and 82, contending that the phrase "intermediate between" is redundant and grammatically awkward. Applicant has amended the claims to correct this error.

Claims 61-69 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 61 and 66 recited the limitation "two waterproof laminates", where there was insufficient antecedent basis for this limitation in the claims. Applicant has amended claims 61 and 66 to overcome this rejection.

Claims 1-17, 20-26, 28-50, 52, 55-69, 73-81, 83-86, 88, 89, and 91-93 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 03-174051 in view of Gore et al. and French. Applicant respectfully traverses this rejection.

In the Final Office Action, and during the personal interview, it was the Examiner's position that JP 03-174051 discloses a latent foamable fibrous structure made from composite fibers. The Examiner contended that although JP 03-174051 fails to teach adding a waterproof, vapor permeable functional layer to the fabric, it would be obvious to combine JP 03-174051 with Gore et al. to improve the water-resistance of the fabric of JP 03-174051 while allowing the

fabric to remain breathable. During the interview the Examiner suggested that applicant point to a specific passage in JP 03-174051 which would show that the document does not disclose a breathable fabric.

Applicant respectfully submits that the burden is on the Examiner to show that JP 03-174051 would necessarily produce a breathable fabric. Since the Examiner has not provided any evidence that JP 03-174051 discloses a breathable fabric, one could not conclude that one of ordinary skill in the art would be motivated to combine the teaching of JP 03-174051 with the breathable, waterproof functional material of Gore et al. to produce a breathable, waterproof fabric. Therefore a prima facie case of obviousness has not been made. Accordingly, for at least this reason applicant submits that the rejection should be withdrawn.

Moreover, the Examiner also recognized that JP 03-174051 fails to teach forming seams with the fabric of JP 03-174051. The Examiner concluded that since JP 03-174051 teaches using the fabric in wet environments, one of ordinary skill in the art would desire seams which are resistant to water. The Examiner then relied upon French, which discloses forming seams between two identical thermoplastic materials by thermally bonding the layers together, to conclude that since French discloses that two materials consisting of 100 percent thermoplastic material may be thermally bonded to form a seam with a strong, air-tight and waterproof seal, that it would be obvious to one of ordinary skill in the art to conclude that the claimed at least bi-component material of the present invention could be thermally bonded to produce strong, air-tight and waterproof seams. The Examiner asserted that it would have been obvious to one of ordinary skill in the art to thermally bond the seams by melting the lower melting component in the fabric, since melting the lower melting component would require less energy to form the seal, while maintaining the structure of the fiber component in the bi-component fabric. Applicant respectfully disagrees with the Examiner's conclusion.

Applicant fails to see how the teaching of French, which discloses that two panels of single component, thermoplastic materials can be thermally bonded together, would lead one skilled in the art to believe that the claimed laminate, including a waterproof functional layer laminated to a second layer comprising at least a bi-component material, could possibly be thermally bonded together to not only form a waterproof seal, ("waterproof" being clearly defined in the specification) but also result in a sufficiently strong bond to produce a useable seam. It appears that the Examiner believes that on the one hand,

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JP 03-174051 discloses a breathable fabric - which one skilled in the art would certainly believe would be "breathable" due to interconnected porosity in the article - while on the other hand, believes that this same article would obviously produce a waterproof seam - which certainly would be obtained through forming an article with closed porosity. Therefore, the Examiner has concluded that JP 03-174051 discloses a fabric which on the one hand has interconnected porosity, but on the other hand would obviously have closed porosity. Applicant submits that the Examiner has engaged in impermissible hindsight reconstruction to arrive at this rejection. The prior art simply does not disclose or suggest applicant's claimed invention. Accordingly, applicant respectfully requests that this rejection be withdrawn.


The remaining claims were rejected under 35 USC §103(a) as being unpatentable over JP 03-174051 in view of Gore et al. and French as applied to claims 1 and 26 above, and further in view of Richmond. Applicant respectfully traverses this rejection.

Applicant submits that Richmond fails to disclose or suggest the deficiencies outlined above. Accordingly, applicant respectfully requests that this rejection be withdrawn.

As all of the outstanding rejections have been addressed and overcome, applicant respectfully requests issuance of a prompt and favorable action.

Should the Office have any questions, the Office is invited to telephone applicant's undersigned representative.

Respectfully submitted,



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56. The combination of claim 55, wherein the functional layer (5) is selected from the group of materials consisting of polyesters, polyamide, polyolefins, polyvinylchloride, polyketones, polysulfones, polycarbonates, fluoropolymers, polyacrylates, polyurethanes, co-polyetheresters, and co-polyetheramides.
57. The combination of claim 56, wherein the functional layer (5) is made from expanded PTFE.
58. The combination of claim 26, wherein the MVTR of the laminate (1) is greater than $3000 \text{ m}^2/24 \text{ hr}$.
59. The combination of claim 26, wherein the water entry pressure of a laminate (1) is greater than 0.13 bar.
60. The combination of claim 26 in a garment.
61. The combination of claim 1 wherein the waterproof substrate comprises at least a waterproof laminate (400, 450), having a functional layer (10, 20) laminated to a textile layer (30), wherein the waterproof seam (500) has a transverse seam strength of greater than 3 pli and an elongation strain at break greater than 75%.
62. The combination of claim 61, wherein the seam (500) has a width of less than 0.25 cm.
63. The combination of claim 61, wherein the stiffness of the seam (500) is less than 50 mm^{-1} .
64. The combination of claim 61, wherein the seam (500) withstands water pressure of 0.13 bar for at least three minutes.
65. The combination of claim 61, wherein the seam (500) shrinks by less than 7% after welding.
66. The combination of claim 1 wherein the waterproof substrate comprises at least a waterproof laminate (400, 450), having a functional layer (10, 20) laminated to a textile layer (30), wherein the waterproof seam (500)

has a transverse seam strength of greater than 3 pli and wherein the stiffness of the seam (500) is less than 50 mm^{-1} .

67. The combination of claim 66, wherein the seam (500) has a width of less than 0.25 cm.
68. The combination of claim 66, wherein elongation strain at break is greater than 75%.
69. The combination of claim 66, wherein the seam (500) withstands a water pressure of 0.13 bar for at least three minutes.
70. Cancelled.
71. Cancelled.
72. Cancelled.
73. The combination of claim 17, wherein the second component is selected from the group of thermoplastics comprising co-polyester, polyamide, co-polyamide or polyolefin.
74. The combination of claim 73, wherein the second component is a polyamide 6.
75. The combination of claim 73, wherein the second component is a polyethylene.
76. The combination of claim 13, wherein the yarn has a bicomponent structure comprising the first component and the second component.
77. The combination of claim 76, wherein the yarn has a cover-core structure, wherein the second component forms the cover.
78. The combination of claim 76, wherein the yarn has a "side-by-side" structure.
79. The combination of claim 13, wherein the second layer is a blend of said plurality of yarns selected from strands, filaments, threads and fibers.
80. The combination of claim 13, wherein the yarn is comprised of fibers.

81. The combination of claim 9, wherein the propellant after activation generates a closed cell foam with the second component after melting.
82. The combination of claim 9, wherein the propellant is activated at a temperature between the second temperature and the first temperature.
83. The combination of claim 9, wherein the propellant is an integral part of the second component.
84. The combination of claim 1, whereby the first component does not disintegrate below a temperature of 140° C.
85. The combination of claim 26, whereby the first component does not disintegrate below a temperature of 140° C.
86. The combination of claim 15, wherein the first component is a polyolefin selected from polypropylene and polyethylene.
87. The combination of claim 15, wherein the first component is a protein fiber selected from wool and silk.
88. The combination of claim 21, wherein the functional layer is polytetrafluoroethylene (PTFE).
89. The combination of claim 39, wherein the first component is a polyolefin selected from polypropylene and polyethylene.
90. The combination of claim 39, wherein the first component is a protein fiber selected from wool and silk.
91. The combination of claim 41, wherein the second component is a polyolefin selected from polypropylene and polyethylene.
92. The combination of claim 55, wherein the functional layer is 451 polytetrafluoroethylene (PTFE).
93. The combination of claim 73 wherein the second component is a polypropylene.